

REVISION OF THE GENUS AND SPECIES OF
DINACOMA WITH DESCRIPTION OF A
NEW SPECIES (COLEOPTERA:
SCARABÆIDÆ)

BY FRANK E. BLAISDELL, SR.

Stanford Medical School, San Francisco, California

In 1885 Thomas L. Casey announced a new scarabæid, *Polyphylla marginata*, without description. In 1886 the description of the species appeared under the generic caption of *Thyce marginata*. In 1889 a new genus was established for the species by Casey, namely, *Dinacoma*. According to him the characters agreeing with *Thyce* are the structure of the labial palpi and tarsal claws, and those agreeing with *Polyphylla* are the greatly developed male antennal club and the "short" tarsi. On account of the disconnected publication of the original descriptions the following revision is presented. Colonel Casey's generic characterization follows with slight modification:

DINACOMA Casey (MELOLONTHINI)

Clypeus concave, parallel and subtruncate at apex; mentum moderate, concave, subquadrate and connate with the ligula; the latter transverse and feebly emarginate at apex. Maxillæ moderate, the palpi well developed; first joint very small, narrow and obconical; second and third longer than wide, the former the longer, both obconical and obliquely truncate; fourth slightly shorter than the preceding three together, pointed, deeply impressed or excavated on its outer face. Labial palpi very small; third joint ovoidal, obtusely acuminate, as long as the two preceding together. Labrum short, transverse, free, impressed in the middle. Antennæ ten-jointed; middle joints of funicle subankylosed, short; club trifoliate, very long and arcuate in the males. Anterior coxæ transverse, but slightly prominent. Metasternal episterna moderate in width. Abdominal segments connate, the sutures fine but not entirely obliterated, rendered distinct by the disposition of the vestiture. Metasternum well developed. Legs rather short and slender; tarsi moderate in length, the posterior shorter than the tibiæ; claws moderately evenly and strongly arcuate, toothed near the base, the teeth distinctly unequal, especially the anterior.

In both of the known species the anterior tibiæ have two teeth exclusive of the exterior and very pronounced apical spur; these teeth are very unequal, the one nearer the base being very short and obtuse.

DINACOMA MARGINATA Casey

Form moderately robust to somewhat parallel; sides more or less distinctly arcuate, least so in the parallel form. Color rufo-fuscous, the anterior parts somewhat piceous, legs fuscous. Head, pronotum and femora abundantly clothed with long flying hairs, less abundant on the abdomen and sparser and shorter on the tibiæ; sterna extremely densely clothed with long, soft, cinereo-fuscous pile. Squamous vestiture albo-plumbeous. Pronotum with three posteriorly divergent vittæ of cinereous squamæ, the exterior ones widest and interrupted in the middle, the median finer and more or less obsolete, especially toward the base. Each elytron having along the exterior edge a very wide line of plumbeo-cinereous and slender squamæ not very closely placed, which is incurved at apex, continuing thence along the suture as a narrow, whiter and usually better defined line to the base; between these another very fine vitta, terminating at about one-fifth of the length from the apex; squamæ of the intervening areas slender and sparser, while those of the vittæ and those otherwise distributed are stouter, all lanceolate and linearly acuminate apically, to linear or even hairlike. On the pronotum the visible surface between the vittæ is very sparsely punctate; punctures coarse, circular, variolate and shallow, each giving rise to a squama or a long, more or less erect, hair. Scutellum very densely clothed with cinereous squamæ. Beneath the inflexed sides of the pronotum and mesosternal and metasternal parapleuræ in part are densely clothed with albo-cinereous squamæ, each ventral segment has an irregular spot of similar character each side next to the epipleuræ; abdominal surface sparsely clothed with smaller lanceolate squamæ. Head rather densely clothed with long flying hairs, intermixed with moderately narrow lanceolate squamæ at periphery, especially on the clypeus, these more or less obsolete centrally and replaced by hairs; beneath, the hairs are more abundant and longer.

Head, excluding the eyes, slightly longer than wide, subquadrate; clypeus moderately reflexed, apex broadly and feebly sinuate, angles rectangular; frons densely and coarsely punctate, clypeus less so. Antennæ well developed, club three and a half times longer than wide and two and a fifth times longer than the funicle; the folia wider at apex than at base. Funicular joints nearly equal in length, the fifth and sixth with club in adduction appear transverse and briefly produced anteriorly; with club in abduction they appear longer and subequal to each of the other joints (Fig 9); scape obconical, short, and less than twice as long as wide at apex.

Pronotum widest at middle and there moderately arcuate, about one-half wider than long; sides thence strongly convergent and feebly arcuate to the apical angles which are very obtuse, toward base feebly convergent and straight to the basal angles. the latter obtuse and more or less rounded; base strongly arcuate, especially

in middle third, and feebly sinuate laterally toward each angle; disk strongly convex from side to side, sparsely and irregularly punctate, punctures shallow, variolate and circular, smaller and denser in the densely squamous areas.

Elytra at base slightly wider than the prothorax, sides parallel and more or less arcuate, together slightly less than one-half longer than wide, two and a half times as long as the pronotum, finely, sparsely, feebly and irregularly punctate, punctures somewhat asperate; apices separately rounded, sutural angles obtuse.

Pygidium slightly wider than long, feebly convex, finely and rather sparsely punctate, moderately sparsely and evenly clothed with small, slender squamæ and intermixed hairs. Posterior tarsi three-fourths as long as the tibiæ. Claws moderate, having a small erect tooth interiorly near the base; tooth of outer anterior claw small or obsolete with inferior margin thence to base more or less sinuate; inner teeth of the middle and posterior claws a little smaller than the outer.

Males with a large and rather feeble, more or less variable impression in the middle of the abdomen near the base. Female unknown.

Holotype, a male, in the Casey collection deposited in the United States National Museum. Length, 19 mm.; width, 8.5 mm.

Type locality: San Diego County, California, undoubtedly Ocean Beach near San Diego. Casey mentions five or six specimens taken by Mr. G. W. Dunn and that he received the type specimen from Mr. W. G. W. Harford. Six specimens studied as follows: Three in the Van Dyke collection, two taken by E. L. Ricksecker at Ocean Beach, and one collected at Riverside, California, July, 1914; one presented to the collection of the California Academy of Sciences by Dr. F. C. Clark, also taken at Ocean Beach; and two in the author's collection, taken by George Field at Ocean Beach on June 28, 1897. A specimen has been submitted to Mr. L. L. Buchanan, custodian of the Casey collection in the National Museum, who has very carefully compared it with the type and vouches for the correctness of the identification.

The specimen from Riverside presents some divergence from the typical *marginata*: the clypeus is moderately deeply and triangularly emarginate and the elytra are not noticeably vittate; the abdomen is more densely squamous and the lateral white spots not defined. Two other specimens taken at San

Diego by Mr. Field present other divergencies. These specimens may represent other species or subspecies.

In *marginata* the apical deflexed surface of the clypeus is glabrous and shining, with a row of slightly irregularly placed punctures at base near the labrum, each puncture well defined, coarse, shallow, and setigerous. The labrum is deeply and broadly emarginate, the rounded floor of the sinus is flush with the deflexed surface of the clypeus, the lateral lobes are small and obtusely rounded on the apical margin and not beaded.

Dinacoma caseyi Blaisdell, new species

Form moderately robust to somewhat parallel, in the former the sides are distinctly arcuate, less so in the parallel form. Moderately rufous in color. Squamous vestiture and pubescence albo-cinereous throughout. Head, pronotum, and legs rather sparsely clothed with long, soft, flying hairs, abdominal segments less so; sterna extremely densely invested with long, soft pile; anterior margin of the femora fimbriate with similar hairs. Head, pronotum and pygidium densely squamous, more or less hiding the general surface, sparser on the femora and tibiæ; squamæ extremely dense on the scutellum and undersurface of the body, especially on the abdominal segments. Pronotum with a more or less broad lateral vitta (usually attaining the margin) of densely placed squamæ, and a narrow median more or less evident vitta. Each elytron not densely squamous, a sub-sutural narrow vitta is most noticeable, lateral vittæ obsolete, a narrow median vitta is sometimes almost evident, always evanescent apically. Squamæ lanceolate and less elongate than in *marginata*, much less acuminate at apex.

Head excluding the eyes scarcely longer than wide, quite quadrate; clypeus rather less than moderately reflexed, apex truncate and feebly sinuate, angles rectangular, sides distinctly parallel; coarsely punctate, punctures circular, shallow and variolate, hidden by the bases of the squamæ when not desquamated, exposed piliferous punctures much fewer than in *marginata*. Apical deflexed surface of the clypeus glabrous, with a transverse line of coarse subobsolete setigerous punctures at middle; labrum deeply emarginate and impressed at middle and flush with the clypeal surface, lobes small and more or less beaded at apex. Antennæ well developed, club three and a half times longer than wide and two and a seventh times longer than the funicle, folia narrowed in about basal fourth and therefore widest at apex, the latter evenly rounded; funicle rather stout, second joint a little longer than the third, the latter and others quite equal in length when the club is abducted (Fig. 9); the last two funicular joints appear transverse and slightly produced anteriorly and flattened, when the club is adducted.

Pronotum widest at middle, where the sides are rather strongly arcuate and at that point a half wider than long, thence strongly convergent and slightly arcuate to the obtusely rounded apical angles, feebly convergent and almost straight to the moderately rounded basal angles; apex transverse in circular arc; base arcuate, feebly subangulate at middle, thence feebly sinuate laterally toward each angle; disk quite strongly convex from side to side, densely punctate, punctures circular, coarse, shallow and variolate when visible, base of each squama neatly fitted to the contour of the puncture, piliferous punctures not conspicuous and fewer in number than in *marginata*; lateral margins very loosely fimbriate with very long, recurving hairs.

Elytra at base slightly wider than the prothorax, sides parallel and more or less arcuate, together about a third longer than wide and about two and a half times as long as the pronotum; finely, not densely, feebly and irregularly punctate, punctures not noticeably asperulate; apices feebly subtruncate, each slightly inwardly oblique toward the obtuse sutural angle.

Pygidium about a fourth wider than long, convex, finely and rather densely punctate. Posterior tarsi a fifth of their length shorter than the tibia. Claws toothed near the base, teeth well developed, tooth of outer anterior claw small or obsolescent, the inner of the middle and hind tarsi slightly smaller than the outer.

Males with the abdominal segments slightly flattened or impressed along the middle. Female unknown.

Holotype, in my collection, a male (No. 2650, Mus. Calif. Acad. Sci.). Length, 19 mm.; width, 8 mm.

Type locality: **Palm Springs, Imperial County, California**; collected on May 10, 1923. Six specimens studied, five being paratypes, one to be deposited in the collection of the United States National Museum.

Distribution: Southeastern California. Taken at Palm Springs by Mr. J. O. Martin on June 8, 1916; and in Riverside County on April 17 by Mr. E. R. Leach. Specimens have also been examined in the collection of James E. Cottle that were taken in the vicinity of Palm Springs.

Caseyi differs in many characters from *marginata*—the rufous color, obsolete elytral vittæ, and the snowy white squamous vestiture that is extremely dense on the abdominal segments. In *marginata* the squamous vestiture is sparser, especially on the abdomen, the elytra distinctly vittate, and the color is more fuscous than rufous. *Marginata* is Polyphylla-

like in facies, while *caseyi* is more Thyce-like, except for the antennal club.

The male genitalia of *marginata* is figured below and compared with that of a male *Polyphylla 10-lineata*. The differences are very evident. In *marginata* the claspers have a tooth or hook on the inferior margin near apex, while in *Polyphylla* the claspers are decurved and incurved at apex.

In the species of *Dinacoma* the following device for maintaining the eyes free from foreign materials which obscure the vision may be described as follows: The eyes are deeply emarginated by a digitiform extension of the lateral frontal margin; the surface of the process is coarsely punctate. From the punctures arise moderately long and erect, rather rigid setiform hairs. The posterior surface of the first antennal joint or scape is quite densely fimbriate with unusually long apically curved hairs, which, when the antennæ are moved backward and forward, sweep the anterior part of the eyes and, in the backward movement, interdigitate with the erect hairs of the emarginating process which act as a comb, freeing the antennal fimbriæ from dirt. The posterior portion of each eye is swept by the postocular apical pronotal fimbriæ when the head is extended or retracted; also when the head is moved from side to side. The device is better developed in *marginata* than in *caseyi*. It is poorly developed in *Polyphylla*.

All comparative measurements have been made from camera lucida tracings. The measurements given above differ considerably from those given by Colonel Casey. In such scarabæids as *Polyphylla* and *Dinacoma* with large antennal clubs, the club should be abducted at right angles to the long axis of the funicle, which is straightened thereby, before making the comparative measurements; when the club is adducted the fifth and sixth funicular joints appear much abbreviated. Casey states that the tarsi are short; by direct measurement a posterior tarsus is found to be one-fifth of their own length shorter than the tibia. The author, therefore, states that the tarsi are moderate in length.

SYNOPTIC STATEMENT

Elytra vittate; color rufo-fuscous to more or less piceous; squamous vestiture not extremely dense on sterna and abdomen; squamæ

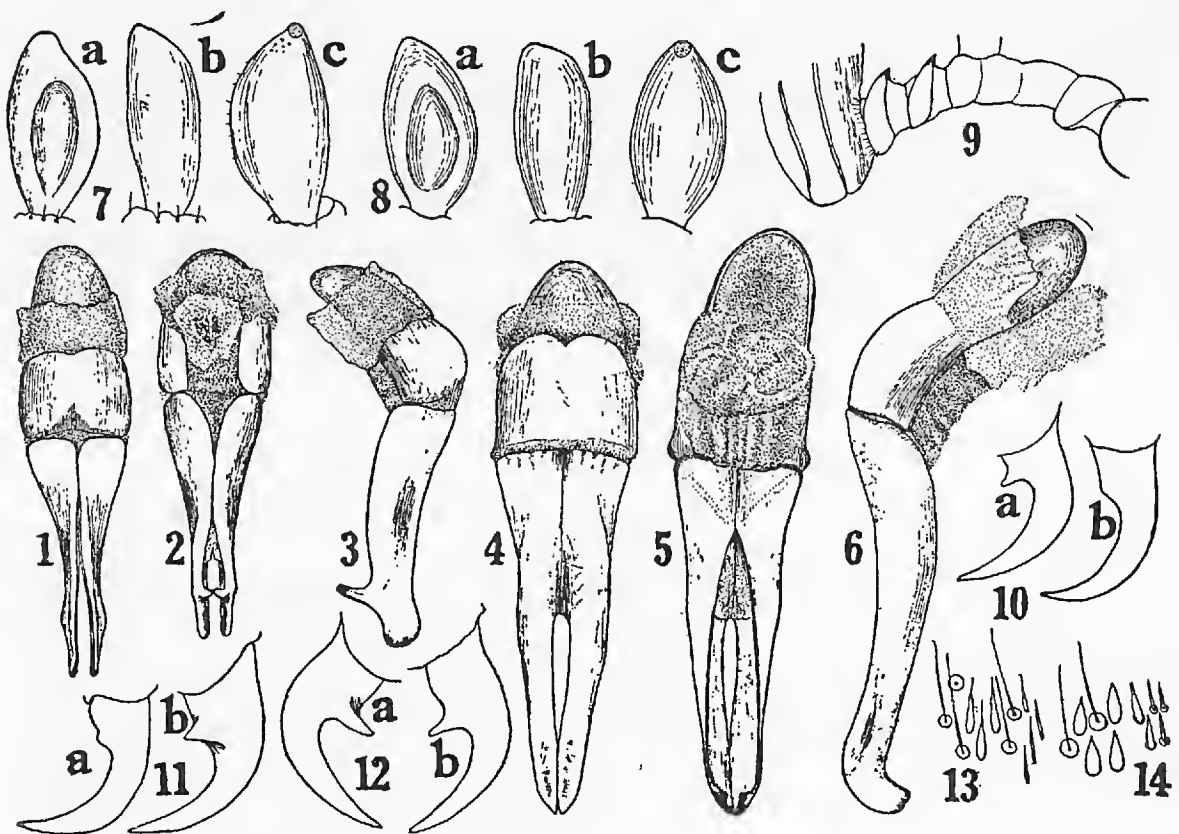
linearly acuminate at apex.....*marginata* Casey
 Elytra not vittate; color rufous; squamous vestiture extremely
 dense on sterna and abdomen, albo-cinereous in color; squamæ
 acutely acuminate at apex.....*caseyi*, new species

BIBLIOGRAPHY

Casey, Thomas L.: *Polyphylla marginata* (announced as). Bull. Calif. Acad. Sciences, I, p. 285. Issued December 15, 1885.

Thyce marginata. Bull. Calif. Acad. Sciences, Vol. 2, No. 5, September 1886, pp. 39-40.

Dinacoma, n. gen. Coleop. Notices I, Annals N. Y. Acad. Sciences, 1889, p. 174.



1, male genitalia of *Dinacoma marginata*, dorsal view; 2, ditto, ventral view; 3, ditto, lateral view; 4, male genitalia of *Polyphylla 10-lineata*, dorsal view; 5, ditto, ventral view; 6, ditto, lateral view. 7, terminal joint of maxillary palpus of *marginata*: (a) outer surface, (b) upper surface, (c) inner surface. 8, ditto of *Dinacoma caseyi*: (a) outer surface, (b) upper surface, (c) inner surface. 9, antennal funicle of *caseyi*, club abducted at right angles to long axis of funicle, condyles of fifth and sixth joints showing; with club in adduction the fifth and sixth joints are transverse, condyles not visible. 10, anterior tarsal claws of *caseyi*: (a) inner, (b) outer. 11, anterior claws of *marginata*: (a) outer, (b) inner. 12, posterior left tarsal claws: (a) outer, (b) inner. 13, predominating squamæ of *marginata*. 14, predominating squamæ of *caseyi*.